

**REMARKS**

Claims 1, 4 and 5 are pending in this Application. Claims 1, 4 and 5 have been amended to address formalistic issues. In addition, claim 1 has been amended to recite that the aluminum nitride ceramic base material exhibits a small degree of warp after heat treatment, adequate descriptive support for the present Amendment should be apparent throughout the originally filed disclosure as, for example, the data appearing in Table 2 and the discussion thereof in the paragraph bridging pages 20 and 21 of the written description of the specification. Applicants submit that the present Amendment does not generate any new matter issue.

**Claims 1, 4 and 5 were rejected under the second paragraphs of 35 U.S.C. §112.**

In the statement of the rejection the Examiner identified language in claims 1, 4 and 5 perceived to render the claimed invention indefinite. This rejection is traversed.

In response the formalistic issues identified by the Examiner have been addressed by the present Amendment, thereby overcoming the stated bases for the imposed rejection. Applicants would note that the mere perceived lack of literal antecedent basis does not automatically generate a rejection under the second paragraph of 35 U.S.C. §112 which is a legal issue. *Bose Corporation v. JBL, Inc.* 274 F.3d 1354, 61 USPQ2d 1216 (Fed. Cir. 2001) (Antecedent basis).

Based upon the foregoing Applicants submit that one having ordinary skill in the art would have no difficulty understanding the scope of the claimed invention particularly when reasonably interpreted in light of and consistent with the written description of the specification. *Miles Laboratories, Inc. v. Shandon, Inc.*, 997 F.2d 870, 27 USPQ2d 1123 (Fed. Cir. 1993). Applicants, therefore, submit that the imposed rejection of claims 1, 4 and 5 under the second paragraph of 35 U.S.C. §112 is not viable and, hence, solicit withdrawal thereof.

In the Office Action dated January 8, 2004, the following prior art rejections were imposed:

1. Claims 1, 4 and 5 were rejected under 35 U.S.C. §102 for lack of novelty or, alternatively, under 35 U.S.C. §103 for obviousness predicated upon U.S. Patent No. 5,424,261 issued to Harris et al. (Harris '261), Chiao, Yasumoto et al., Sugiura et al. and JP 408157265 (JP '265); and

2. Claims 1, 4 and 5 were rejected under 35 U.S.C. §102 for lack of novelty or, alternatively, under 35 U.S.C. §103 for obviousness predicated upon U.S. Patent No. 5,773,377 issued to Harris et al. (Harris '377).

Each of the above rejections is traversed.

Independent claim 1 has been amended to recite that the claimed aluminum nitride ceramic base material exhibits a small degree of warp after **heat treatment**. This is not an incidental limitation but an objective of the present invention clearly announced at page 3 of the written description of the specification, lines 10 etc. Indeed, it is the warp caused by heat treatment after sintering which is the **problem** addressed and solved by the claimed invention. In route to that solution, Applicants conducted investigations and arrived at the present invention which seeks to uniformly distribute sintering agents throughout a sintered ceramic base material, thereby reducing distortion caused by heat treatment after warping (second full sentence on page 4 of the written description of the specification). That objective is achieved, as disclosed at page 4 of the written description, lines 7 etc., by governing the movement of molten sintering agents on the surface of the aluminum nitride ceramic base material which exhibits the properties recited in claim 1.

Applicants submit that there is a limit to how much the doctrine of inherency can be stretched without even a suggestion in any of the applied references that of the problem of distortion or warp due to heat treatment subsequent to sintering is of any concern. Under such circumstances, it strains credulity to say that the ceramic base materials of the applied references necessarily exhibit a small degree of warp after heat treatment.

As previously pointed out, none of the applied references discloses or suggests that warp due to heat treatment after sintering is a problem. Some of the references are concerned with warp caused by sintering. But that is a different problem. It is not apparent wherein any of the applied references expresses any recognition of the warp problem caused by heat treatment subsequent to sintering.

Further, it is not apparent wherein any of the applied references discloses the **particular** methodology employed in the present invention to reduce warp due to heat treatment after sintering, which methodology is disclosed at page 9 of the written description of the specification through page 13, line 8. There may be bits and pieces in various references. But inherency requires **certainty**. *In re Rijckaert*, 9 F.3d 1531, 28 USPQ2d 1955 (Fed. Cir. 1993); *Electro Medical Systems S.A. v. Cooper Life Sciences, Inc.*, 34 F.3d 1048, 32 USPQ2d 1017 (Fed. Cir. 1994); *Continental Can Co. USA, Inc. v. Monsanto Co.*, 948 F.2d 1264, 20 USPQ2d 1746 (Fed. Cir. 1991). There can be **no certainty** when none of the applied references discloses the particular methodology and parameters of the present invention.

It is of interest to note that none of the applied references actually discloses the use of a **porous, high melting point setter** as employed in the present invention. Thus, one of the apparent stepping stones recognized by the Examiner to achieve inherency is **lacking**.

The Examiner singles out the references to Sugiura et al., Harris and Monma (JP'265) as disclosing the use of a setter. But the present employs a **porous, high melting point setter**. None of the applied references, including those identified by the Examiner, discloses a porous high melting point setter.

None of the applied references discloses the notion of controlling the uniformity of distribution of sintering agents as in the claimed invention. None of the applied references discloses or suggests the notion of governing the movement of molten constituents of sintering agents on the surface of the formed body, let alone to achieve the uniformity of distribution of sintering agents as specified in claim 1.

The **data in Table 2**, if nothing else, **clearly demonstrate** that the uniformity of sintering agents and reduced warpage during heat treatment subsequent to sintering **does not just happen to occur**. Rather, particular methodology must be implemented to achieve that objective. Where, as here, none of the applied references discloses the particular methodology employed in the present invention, the **factual** basis for inherency does **not** exist.

Applicants would further note that in the methodology of Sugiura et al., a reference singled out by the Examiner, formed degreased bodies are sintered by stacking them, one on top of another, in layers with a BN powder therebetween. This method is said to prevent form bodies from adhering to one another during sintering. In the stacked configuration, it appears that the substrate placed on the uppermost position undergoes a difference in concentration of the sintering agents, because the sintering agent develops warpage in the sintered substrates. Consequently, Sugiura et al. perform another heat treatment to reduce the warpage. When the sintering operation warps a sintered body convexly and warps the sintered body placed immediately above it concavely, the deformation increases the amount of sintering agent in the

surface portions that face each other. In other words, there is **a technological basis** upon which to conclude that the sintering agent diffuses into the atmosphere. When the sintering operation warps a sintered body concavely and warps the sintered body placed immediately above it convexly, the amount of sintering agent in the surface portions that face each other increases. Accordingly, there is **a technological basis** upon which to predicate the conclusion that the methodology of Sugiura et al. is quite different from that of the claimed invention.

Applicants would further point out that the use of PBN, which is presumably the type of BN employed by Chiao, causes a concentration difference in the sintering agent and, consequently, warp during heat treatment.

Upon examining the entire record, including the specification, the data therein, and the methodology of the claimed invention vis-à-vis the prior art, and upon giving due consideration to the problem of heat treatment during warpage subject to sintering which is not even a blip on the radar screens of the applied references, Applicants submit that the doctrine of inherency is **not** applicable. Applicants would again point out that the recited small degree of warp after heat treatment in the claimed invention is achieved by governing movement of the molten sintering agents on the surface of the aluminum nitride ceramic base material, wherein the aluminum nitride ceramic base material satisfies the recited uniformity of the distribution of sintering agents. None of the applied references discloses the method as employed in the claimed invention, notably employing a porous high melting point setter. None of the applied references expresses any concern whatsoever for warpage during heat treatment after sintering. None of the applied references suggest controlling movement of molten sintering agents on the surface of the aluminum nitride ceramic base material, which impacts the resulting product in a structural sense and, hence, cannot be ignored. *In re Garnero*, 412 F.2d 276, 162 USPQ 221 (CCPA 1969).

Based upon these facts, Applicants submit that none of the applied references discloses, inherently or otherwise, the claimed aluminum nitride ceramic base material. Moreover, there is no apparent factual basis upon which to predicate the conclusion that one having ordinary skill in the art would have been realistically impelled to modify any of the techniques employed in the applied references to arrive at the claimed invention, absent improper reliance upon Applicants' disclosure. *Panduit Corp. v. Dennison Mfg. Co.*, 774 F.2d 1082, 227 USPQ 337 (Fed. Cir. 1985).

Applicants, therefore, submit that the imposed rejections of claims 1, 4 and 5 under 35 U.S.C. §102 for lack of novelty or, alternatively, under 35 U.S.C. §103 for obviousness predicated upon Harris '261, Chiao, Yasumoto et al., Sugiura et al. and JP '265; and the imposed rejection of claims 1, 4 and 5 under 35 U.S.C. §102 for lack of novelty, or alternatively, under 35 U.S.C. §103 for obviousness predicated upon Harris '377 are not factually or legally viable and, hence, solicit withdrawal thereof.

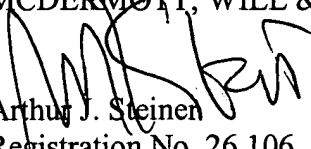
Based upon the foregoing it should be apparent that the imposed rejections have been overcome and that all pending claims are in condition for immediate allowance. Favorable consideration is, therefore, respectfully solicited.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

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Respectfully submitted,

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